Escaping Western Superstitions

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1 Introduction

1.1 The meaning of "West"

The term "West" (with a capital W) refers to a state of the mind, not a direction in space. As defined in the glossary of *The Eleven Pictures of Time*, it all began with the council of Nicea when church first met state.

As Gibbon put it, the church got its empire by fraud: a priest persuaded Constantine that his victory was due not to his military skills, but to the symbol of the cross on his flag. Romans were notoriously superstitious, and Constantine was gullible enough to fall for that line. This fraud provided an entry point for the church, enabling it to brainwash one of Constantine's sons, who was then installed as ruler, after Constantine, by killing off the other sons. However, the church found it difficult to hold on to power. To maintain power one needs a means to drive terror in the hearts of the ruled. Without weapons and with only a simple doctrine of love how could the church terrify people?

Accordingly, the Christian doctrine itself was transformed into a means to terrify people. This transformation involved shifting the emphasis from love to apocalypse and fear of a transcendent God (who had presumably appointed the church as his sole authorised dealer). Post-apocalypse, as Augustine conceptualised it, all people who disobeyed priests would be sadistically tortured for eternity by this transcendent God. The manner of torture (as described by e.g. Dante[1]) was so horrifying that the horrors of the Inquisition paled before it. Torture-fearing, hence church-fearing (as in "God-fearing"), became the epitome of morality, especially in Western Christianity where this and further political transformations of Christianity became the norm.

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1 Dante Aligheri, *Divine Comedy: Inferno*, trans. Charles S. Singleton, Encyclopaedia Britannica, Chicago, 1996. There were no exceptions of any sort; for example, for a description of the treatment meted out to Paigambar Mohammed, see Canto XXVII, p. 35.

Western civilization is characterised by this dominance of Western Christianity—by Toynbee whose theory of history[2] justifies this marriage of state and church. A *defining* feature of the West, then, is the widespread prevalence of falsehoods (e.g. false history) and superstitions (through which the church consolidated its power). This "soft power" continues to be advocated, *as a military strategy*, by Huntington,[3] after the Cold War when universal dominance of the West —visualised as the end of history by Toynbee and Fukuyama—seemed feasible. In view of this goal of universal domination, and the past attempts to achieve it, all those who trivialise the West as concerning a mere direction in space should be forever banned from academics.

The absence of a 13th row in many airlines, or the absence of a 13th floor in many hotels is proof that the silliest beliefs can widely influence human behaviour, and can hence be a source of "soft power". As we will see, this technique of power through falsehoods extends also to more complex matters, like the Western notion of rationality (linked to post-Crusade Christian rational theology) which, like present-day mathematics and science, is wrongly declared universal and secular.

Superstitions grip the mind just because people don't *understand* that they are being superstitious (or are unsure, hence afraid to break the superstition). Likewise, the proposition that (present-day) mathematics and science are religiously biased may be hard to understand. But let us proceed in easy steps.

1.2 Doomsday

Today is a particularly good day to talk of superstitions, because it is doomsday![4] The belief in a doomsday *just about to happen*[5] was critical to generate fear, and send people rushing to the priest. Today was declared doomsday on the particularly frivolous ground that it is the "end" of the Maya calendar, though the Maya did not share any similar superstitious beliefs. While numerous failed predictions of doomsday

2 Arnold J. Toynbee, *A Study of History*, abridgement by D. C. Somervelle, Oxford University Press, 1957.

3 Samuel P. Huntington, *The Clash of Civilizations and the Remaking of World Order*, Viking, New Delhi, 1997.

4 http://edition.cnn.com/2012/12/20/world/doomsday-coming.

5 This shortening of time makes an essential difference between the Christian notion of doomsday and other notions of the end of the world. See, C. K. Raju, *The Eleven Pictures of Time*. Sage, 2003.

have made it the butt of jokes, they still do keep the fears alive. Recall how fears of doomsday flooded the market at the end of the millennium on the Christian calendar. Many people, then, feared something cataclysmic would happen. Journalists wrote many stories, and the sales of books by Nostradamus increased sharply—as did church revenues!

This talk of doomsday has suppressed the curious fact that the Maya calendar begins around -3113 CE, which is remarkably close to the beginning of the (scientific, not popular) Indian calendar, with the Kaliyuga at -3102 CE. This suggests that both used similar astronomical models,[6] the commonality arising presumably because both were connected to Egypt.

In contrast, the early Greeks were such a superstitious lot that they regarded astronomy as an act of impiety, and condemned to death both Socrates and Anaxagoras on the very charge of doing astronomy.[7]

1.3 The AD-BC superstition

The Roman (Julian) calendar improved upon the primitive Greek one, with great fanfare, but it too did not involve any serious astronomical model. That calendar was adopted by Christians as their calendar to fix the then-most-important Christian ritual of Easter. It has now globalised a common Western superstition: together with ABCD, our children are taught the AD-BC superstition as the first lesson in school. That is, to state any date, such as their date of birth, they are taught to recite AD (*anno domini*) or BC (before Christ).

This must be constantly repeated (since dates have to be stated often). Consequently, numerous people come to believe it is true, that there really was a historical Jesus and that they are reckoning time from the "birth of Christ". Mos remain unaware that there is no historical evidence for Jesus or that the "zero" point of the Christian calendar was

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6 As regards the Kaliyuga, one must discriminate, as e.g. the 8th c. Lalla did, between the beliefs of educated Indians, and the Puranic beliefs he declared as false notions.

7 Plato, *Apology*, in Dialogues of Plato, trans. Benjamin Jowett, Encyclopedia Britannica, Chicago, 1996. See the relevant extract posted at http://ckraju.net/hps-aiu.

fixed only in 536 CE (Christian era, *not* "common era"), by back-calculation, to help calculate the dates of Easter. The real beginning of Christianity probably relates to the astrological superstition concerning the "coming of a new age", the zodiacal age of Pisces (around the 2nd c. CE). *Hence*, the fish was used as a secret sign by early Christians.[8]

Further, the AD-BC superstition requires people to constantly acknowledge the mythical Jesus (hence, indirectly, the church and its priests) as their lord (*domini*) and saviour (Christ). Imagine that this practice is changed, and children are asked to recite, instead, the name of "Our Lord Rama" and acknowledge Rama as their "saviour" with every date they state! Or suppose they are likewise required to acknowledge Paigambar Mohammad. There would immediately be howls of protest declaring this new practice to be non-secular and religiously biased. Why, then, did nobody protest about the AD-BC practice as religiously biased? Historians frequently need to state dates, and at least they should be concerned about giving currency to false history, through this practice, so why are our best-known "secular" historians so comfortable with the AD-BC superstition?

Somehow, the Western educated confound secularism with the practice of aping the West. Further, they are as comfortable with this pro-Christian religious bias as the Christian missionaries who often educated them. Hence, they avoid corrective action, even when the bias is pointed out.

1.4 The Christian ritual calendar

The two secular festivals of independent India are defined *only* on the Christian ritual calendar. Further, just to state our independence day as 15 August we are forced, in the same breath, to recall and pay homage to the petty dictator Augustus Caesar. The Roman-Christian calendar celebrates that dictator by assigning 31 days to August to bring it on par with July named after Julius Caesar (to honour whom the length of July was increased to 31 days). This has made it a thoroughly unscientific calendar in which the months have idiosyncratically varied lengths, of 28, 29, 30, and 31 days, and have lost all relation to the natural cycle of the moon, from which the concept of "month" arose.

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8 C. K. Raju, *Euclid and Jesus: How and why the church changed mathematics and Christianity across two religious wars*, Multiversity and Citizens International, Penang, 2012.

Prior to the Julian calendar, Greeks and Romans used months of 30 days alternating with months of 31 days, just because they were bad at arithmetic compared to the Egyptians from whom they copied their calendar, like they copied their gods. Their poor arithmetic skills (inability to state precise fractions) are also apparent in the wrong length of the (tropical) year (at 365¼ days) on the Julian calendar. This de-scientification of the calendar is clear proof of regress, contrary to the Christian doctrine of progress, which is yet another superstition. But what makes us still hang on to those practices today? Why do we still teach this unscientific and inferior calendar to our children?

An alternative is readily available. On the Indian calendar, from at least the 3rd c. CE *Surya Siddhanta*, a month always has exactly 30 *tithis*, because a *tithi* is scientifically defined as the time in which the angular distance between sun and moon increases by 12 degrees. A *tithi* is not the same thing as a civil day (*sawan din,* time from sunrise to sunrise), but the two are related by an easy arithmetic calculation—easy at least for Indians. If the aim is to keep track of civil days, an easy and scientific way to do that is to use the Indian *ahargana* or day number; scientists do currently use it, but call it the "Julian" day-number system, after a contemporary of Clavius who unethically copied that practice, without acknowledgment, from Indian texts then imported into Europe. Clavius who authored the Gregorian reform (from texts, not observation) had sent his student Matteo Ricci to study Indian calendrical texts in Cochin. (That being Inquisition time, both concealed from the lay public this enterprise of learning from non-Christians, and the present-day nomenclature of "Julian" days furthers that concealment.) However, let us set aside the matter of inputs from India into the Gregorian calendar reform. The question is this: because of what superstitions have we today rejected the scientific Indian *pancang* in favour of the unscientific Gregorian calendar?

Superstitions damage practical interests in various ways. Using a bad calendar seriously hurts our key practical interests. The Indian economy is (still) based on monsoon-driven agriculture: hence, the Indian calendar (derived from a sophisticated astronomical model) has a rainy season (the months of *sawan*, *bhadon*), known to any child. This is missing in the Gregorian calendar which lack the very concept of a rainy season.

In the last decade, for several years, the monsoon was "delayed" on the Gregorian calendar, but arrived in time on the Indian calendar.[9] Hence, I have been pressing for a review of the calendar, since 2003.[10] But the Western educated find it very difficult to reject any Western practice. They are unwilling even to discuss the possibility.

Even our post-independence calendar reform committee entirely overlooked[11] that our major practical concern is with rains (or the moisture balance) not merely with summer and winter (or heat balance). There is not a word about monsoons and their relation to the calendar in that entire report. So, even our "experts" may be quite useless in such matters.

Indeed, the monsoons depend upon the wind regime, and that depends not solely upon the heat balance but also upon the "Coriolis force" (hence on the sidereal year, commonly used in the Indian calendar). Further, lunar tidal forces are much stronger than those of the sun. Compared to the sea, lunar tides are very huge in the atmosphere but their effect on the wind regime has not been studied to my knowledge. Whatever the result of such a study, it is not obvious, so our calendar reform committee was wrong in asserting that it was obvious that one ought to use the Western system which neglects both lunar and sidereal motion.

1.5 Some questions

How did we mistake the Christian ritual calendar for a secular calendar? Why are the dates of our Independence day and Republic day fixed on that ritual calendar? Why did we accept that ritual calendar as our national calendar when the ritual (of Easter) is of little importance

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9 For some archived press reports, see http://ckraju.net/papers/Monsoon-pages-from-calclnm.pdf.

10 http://ckraju.net/papers/Calendar-from-Cultural-Foundations-of-Mathematics.pdf.

11 Govt of India, *Report of the Calendar Reform Committee*, CSIR, New Delhi, 1955. Also, M. N. Saha and N. C. Lahiri,, "The History of the Calendar.", published as a separate volume, under that title by CSIR. This was a part of the report.

to most Indians? Why did we accept that inferior and manifestly unscientific calendar over our existing scientific one (while talking of scientific temper)? Why do we *persist* with a bad calendar when it hurts our practical interests? Why are we so resistant to consider (or even discuss) any change away from West?

Attempting to answer these questions gives us a graphic illustration of how Western superstitions have gripped the minds of so many people, and driven whole countries to ruin.

1.6 Absence of critical examination

The Western educated commonly attack critics by using the theological techniques of caricature and misrepresentation. To preempt that, I emphasize that what I am proposing is *not* "reject the West", but "critically examine the West and reject its superstitions".[12] What I am pointing out is the complete inability of the Western educated to look critically at the West and correct wrong Western practices, as in the case of the calendar.

To reiterate, in a matter related to the key means of production in India, Western educated Indians (including Marxists) uncritically accepted Western ritualistic and religious practices as superior, though the slightest examination would have shown them up as inferior and based on mere superstitions. Having palmed off the Christian calendar as secular, they are unable and unwilling (for the last decade) to carry out even a debate on that question today. Like those who trained them, they want to hang on to the most wretched beliefs, and are not open to correction. This sort of widespread and long-term uncritical attitude among the Western educated, and the resistance to change, requires a systematic explanation.

Let me also reiterate that the calendar is just an easy example (a step above triskaidekaphobia and doomsday). Similar behaviour (uncritically aping the West and an inability to change those practices) is typical of the colonised in most matters. A key concern, considered later on, is about how this attitude has led also to an inferior

12 C. K. Raju, "Be critical, choose what is best", *The Sun*, Malaysia, 29 Aug 2011, p. 16. Archived at http://ckraju.net/press/2011/the-Sum-29-Aug-2011-p16-clipping-ckr-response.gif.

mathematics and science.

2 Colonialism and mind capture

Damaging one's own interests through wrong beliefs (e.g. calendar) is characteristic of superstition. This becomes especially problematic when such superstitions have been deliberately implanted by an organization which hopes to benefit from it, for its supporters will then rush to defend those superstitions. And, as already pointed out, the church used superstitions as weapons to capture the minds of its flock, turning them into sheep, to be able to rule over them.

Colonialism extended this technique (of ruling by mind capture) to the colonised elite, but without asking them to convert to Christianity (as was done in Europe). The colonised were taught to believe the West unquestioningly, so unquestioningly that it is much like a religious belief. (Hence, discarding Western practices is as painful to them as reconversion!) Colonialism was definitely *not* established through just a military "battle" won by bribery.

This "soft power", or mind capture through falsehoods (not any "hard" advantage in military technology), was the secret weapon of colonialism. That soft power over a created elite is what enabled a handful of Britishers to rule a vast country like India, after hanging around with that ambition and no success for 250 years between Vasco da Gama arrival and the battle of Plassey.

2.2 The role of Western education in mind capture

This "soft power" today works through Western education which systematically implants various falsehoods and wrong attitudes (such as the AD-BC superstition) in the minds of impressionable children, especially those who will grow to be future rulers.

To enable this, Western education has four characteristic features.

1. **Scientific illiteracy**. It instills a fear of mathematics and science, so the vast majority of the Western educated do not know the basics of mathematics and science.

2. **Gullibility.** It instills a blind "trust the West" attitude (needed for success in implanting falsehoods). This applies also to scientists who judge a piece of science not by applying their minds to it, but by asking which Western authority approved it.
3. **Sense of superiority**. It implants the idea that the West is superior in all respects, *hence* must be imitated. This assists both in forming and maintaining gullibility. Hence, a critical examination (e.g. of alternative philosophies) is bypassed, since Western superiority is taken as axiomatic.
4. **Cultural blackout**. It instills ignorance of other cultures, and makes people "culturally blind", by teaching them to avoid contact with all "other" knowledge and views, as if contaminated. The church handled heretics similarly, by eliminating them, and not allowing their views to be discussed. Cultural blindness eliminates all alternatives from the mind (and anyway all alternatives are axiomatically inferior!)

Scientific illiteracy is essential to maintain superstition. And, the fact is that the vast majority of the Western educated are too scientifically illiterate to understand the Indian calendar or its underlying astronomical model. They are ignorant even of the true length of the year, and still commonly state the incorrect figure of 365¼ days, the way Romans did with their primitive arithmetic. Indeed, most Western-educated people cannot even define the term "year" or differentiate between the tropical year (time from equinox to equinox, used in the Gregorian calendar) and the sidereal year (time for one orbit of the earth around the sun, often used in Indian calendars).

This scientific illiteracy is definitely not restricted to the calendar. Most people do not even know *why* 2+2=4 on present-day mathematics. Hence, they are even less able to respond to a debate on changing present-day mathematics.

Gullibility is instilled into the Western educated by teaching them that Western authority is the only reliable source of knowledge. *Hence*, a typical paper written today by a "learned" Indian academic will be full of such "authoritative" citations from Western authors, as Claude Alvares keeps pointing out. One is hence not permitted to criticise the West beyond citing the token criticism of its own "soft" internal critics: there is no written rule, but few will dare to cite real critics like this

author.

The Western educated are so convinced of the superiority of the West (hence their own superiority, by aping it) that they are devoid of elementary commonsense. A common example is that of businessmen and managers wearing suits in Delhi summer, on the belief that this is a superior form of dress! This is not just a laughing matter, because so many children learn in school to wear a tie, and learn to feel superior as a result. Another example of farcical behaviour, is that of air hostesses trying to become "superior" by speaking even Hindi with a "fashionable" British accent!

Clothes and accents are superficial and easily discarded, but what about the Indian constitution? Having accepted it we are stuck with it, and cannot easily change it. But by what *process* did we accept it in the first place? Informed consent is the essence of democracy. But the Indian constitution was written in the English language, which was (then) unknown to 99% of the Indian population. Certainly, no one bothered to read it out, translate it, and explain it to Indian people. Therefore, they could hardly have given their *informed* consent to it.

Nevertheless, our Western educated leaders (barring Gandhi ji) were convinced that writing the constitution in the English language, and imitating the British constitution (with some superficial changes) was the right and superior way to go about building a democracy. They were also convinced that imposing these "superior" convictions on "backward" Indians was the only *democratic* way forward! What a sorry start to Indian democracy! (This applies to all former colonies.) So, just the misplaced sense of superiority is powerful enough to drive a whole country back into the arms of colonialism.

Censorship or blindness to alternatives and criticism is another requirement needed to maintain propaganda derived from Western falsehoods and superstition. Cultural ignorance is *hence* so carefully instilled that the Western educated are mostly unaware of any alternatives, whether in dress or in law, political system, or economics, or even philosophy. To go back to the example of the calendar, the typical Western educated Indian, even though living in India, is so unfamiliar with the Indian *pancang*, that he cannot even name the months on it.

This cultural blackout (and suppression of criticism) means that Western philosophers are engaged in mere obscurantism because they are untutored about other cultures. Thus, Kant foolishly said in his *Critique of Pure Reason* that logic had reached perfection since it had not changed since Aristotle, just because he was unaware of the different systems of logic prevalent in India such as the Buddhist *catuskoti* or that the logic attributed to Aristotle (of Toledo, not Stagira) probably derived from one such Indian (Nyaya) system.[13] In general, this lack of awareness of other systems (or their persistent caricature and misrepresentation) makes Western philosophy largely worthless, since ill-informed.

2.3 Western education as a church system

The above curious features of Western education—scientific illiteracy, gullibility and blind acceptance of Western authority, a sense of superiority, and blindness to other cultures—were not accidental. *They came about by design*.

The slightest acquaintance with the history of the Western university education system shows that it was originally designed to produce Christian missionaries. The above features exactly suited the mass-production of Christian missionaries: scientific illiteracy to avoid contentions with faith, an entrenched belief in the superiority of *his* scriptures (contrary to all commonsense), a gullible belief that *his* authorities were the only reliable sources, and cultural blindness or total lack of understanding of the culture of those he wanted to convert (or a misunderstanding of it through deliberate caricature and misrepresentation). And, of course, a rigid adherence to his beliefs and practices, and a total unwillingness to change despite criticism.

As regards scientific illiteracy, Indian children, for example, were taught in the 5th c. CE that the earth is round, like a *kadamba* flower, and told simple reasons for it,[14] to refute mythical beliefs in a flat earth.

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13 C. K. Raju, "Logic", in: *Springer Encyclopedia of Non-western Science, Technology and Medicine*, 2008. http://ckraju.net/papers/Nonwestern-logic.pdf.

14 Lalla, "False notions", *Sisyadhıvrddhida Tantra of Lalla*, with the commentary of Mallikarjuna Suri, ed. and trans. Bina Chatterjee, INSA, New Delhi, Part II, chp. 20, p. 269.

However, the Bible (Jerome's Vulgate from the 5th c. CE, and King James version) says the earth is flat.[15] Since the objective of Christian missionaries was to spread the Bible, only a select few could be taught science (the better to construct apologias), else they might lose their faith. Hence, scientific illiteracy was and remains a requirement of Western education. Even those Indian children who today opt for the science stream (and who end up as engineers or even science graduates say) do not learn any serious science, certainly not enough to take any informed decisions even about what they are taught, like calculus. I demonstrated this during a lecture in IIT Ahmedabad.

Clearly, we still follow the tradition set by the first Western universities of Bologna, Cambridge or Oxford, which were Christian seminaries, totally controlled by the church, since the Crusades when they started.[16] That church control persisted even into the 20th century CE. For example, Isaac Newton's secret work on the perversion of the Bible leaked out and was auctioned in 1936. Subsequently, three prominent US universities (Harvard, Princeton, Yale) refused to keep those manuscripts, on various pretexts, even when those papers were offered to them for free (by a refugee Jew Yahuda, through Albert Einstein)[17]. Clearly they were mightily frightened of doing anything contrary to the church. The persistence of church control is also manifest in many prominent Indian educational institutions (St Stephen's, Delhi, St Xavier's, Mumbai, Loyola College, Chennai, etc.) who produce the babus and netas of tomorrow.

2.4 Western education as a means of counter-revolution

The colonial rulers were not under any kind of illusion regarding the nature of the educational system which they imposed on the colonised. They were well aware that it led to capture of the mind. That was exactly what they wanted.

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15 For some quotations about the flat earth in the Bible, see http://ckraju.net/hps-aiu/flat-earth-in-Bible.txt.

16 C. K. Raju, "Decolonising our universities: Time for a change", GlobalHigherEd blog, http://globalhighered.wordpress.com/2011/09/11/decolonising-our-universities-time-for-change/

17 C. K. Raju, "Newton's secret", chp 4 in *The Eleven Pictures of Time*, Sage, 2003.

Thus, though much has been written about Macaulay's infamous minute of 1835, people overlook his 1847 speech to the British parliament.[18] Recall that at that time, Europe had a large proletarian population, and was haunted by the spectre of a revolution, along the lines of the French revolution. Therefore, a key problem for European rulers was how to contain those revolts.

Macaulay, in his speech to British parliament, declared (the church form of) education (for the poor) as *the cheapest means of counter-revolution*. He argued that it was the duty of the state to *prevent* a revolution, and not to go about hanging people *en masse* after an attempted revolution.

So, if various revolutions failed, or failed to take place (as in India), a key factor was the imposition of Western education, or the inability to change it even after revolution in many countries. For a staunch racist like Macaulay the colonised were a rung below the proletariat in Europe, and so he offered the same "remedy" for them.

For those among the colonised who were smart enough to have doubts, the deal was sweetened by a bribe: the promise of a clerical job. (That was then so highly valued, that babu is still a term of high respect in Bengali!) That way, those who escaped the net of superstition were still tied in by greed. (This is similar to the church technique of offering material inducements for conversion.)

2.5 Swaraj and nai talim

Gandhi ji, who understood colonial thinking very well, emphasized the need of reforming education to free the mind. Swaraj is not the same thing as our present-day notional political independence. One needs to free the mind, not merely open the collar: for trained dogs return to the master even when they are set "free", the way we returned to the British constitution immediately after "independence".

Clearly, one needs a new education system, a *nai talim* (not necessarily

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18 T. B. Macaulay, Speech to the House of Commons, 18 April 1847. Miscellaneous Writings and Speeches of Lord Macaulay, vol. IV, Speeches of Lord Macaulay, http://www.gutenberg.org/files/2170/2170-h/2170-h.htm#2H_4_0031.

the same conception of it that Gandhi ji had a century ago).

How to break into the currently entrenched Western education system? How to ensure that education frees the mind instead of enslaving it? Ideally this must be a bottom-up process. However, in practice, it is easiest and best to do it top-down and start by decolonising the university. The school syllabus is controlled by the experts from the university, so any *fundamental* change in school education is impossible without changing things at the level of the university.

2.6 Past efforts to reform the Western education system

To this end, of ending academic imperialism, ending the hegemony of the West, and to decolonise our universities, several meetings have already been held in Tehran,[19] Penang,[20] and AIU.[21,22,23] Various newspaper reports of these meetings are also available.[24, 25]

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19 Sue-San Gahremani Ghajar and Seyyed-Abdolhamid Mirhosseini ed., *Confronting Academic Knowledge*, Iran Universities Press, Tehran, 2011

20 Claude Alvares and Shad Faruqi ed., *Decolonizing* our *Universities*, Citizens International and USM, 2012.

21 Curriculum development workshop on history and philosophy of science, AlBukhary International University, 26-30 March 2012. Two announcements are at http://multiworldindia.org/12/decolonised-phil-of-science-workshop/ http://multiworldindia.org/2012/02/. The resulting curriculum, which I am currently teaching is posted at http://ckraju.net/hps-aiu/History-and-Philosophy-of-Science-curriculum.pdf.

22 Mathematics workshop 2012 on "Calculus without limits", AlBukhary International University, 29 May 2012.

23 Brainstorming meet on Humanities and Social Science Curriculum, AlBukhary International University, Jan, 2013.

24 There was an extended public discussion on the Penang decolonisation conference in *New Strait Times*, *the Sun*, *Economic and Political Weekly*, GlobalHigherEd. Some of this material is archived on my blog, and links to this are available at http://ckraju.net/blog/?p=61, http://ckraju.net/blog/?p=62, and http://ckraju.net/blog/?p=65.

25 Report of AIU workshop on HPS. http://alef.ir/vdccsoqso2bq0s8.ala2.html?

In these meetings, the proposals I have outlined are the following. First, to decolonise education, we should reverse the steps followed by colonialists to establish Western education at the beginning of colonialism.[26] Second, we need to focus on hard science, and decolonise math and science education.[27]

3. Correcting false history

3.1 The role of false history

How was Western education established at the beginning of colonialism? That again required falsehoods. Falling into the trap of those Western myths (which complement Western superstitions) gullible Indians themselves asked for Western education.

To be fair, Indians then maintained a very high standard of honesty (verbal contracts were binding), so they were totally unprepared for the campaign of organized falsehoods unleashed by the church. That marketing campaign was stepped up following the first British military victory in India.

Now, Indians especially trusted men of religion, who had the cultural image of being totally unconcerned with political power, as in the *bhakti* and *sufi* tradition. That is, the idea of a marriage of convenience between church and state, which is the essence of the West, was totally foreign to India. Indians never even imagined that Christian priests might be doubling as military spies. It never struck them then that the British regarded the church and its education system as an auxiliary military weapon, or a currency of power, they way military strategists like Huntington still do today.

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26 C. K. Raju, *Ending Academic Imperialism: a Beginning*, Multiversity and Citizen's International, Penang, 2011.

27 C. K. Raju, "Decolonising math and science". In *Decolonizing our Universities*, Claude Alvares and Shad Faruqi ed., Citizens International and USM, 2012, chp. 14, pp. 162-195 Video is first 34 minutes of the one at http://vimeo.com/26506961

Exploiting this trust of the colonised was as key an aspect of colonisation, as it was of conversion. To reiterate, *these falsehoods were the secret weapon of the West, the real means by which colonialism was established.*

Thus, Rammohun Roy, ahead of Macaulay, demanded Western education[28] on the grounds that West was superior in science. (Hence, also my focus on changing the education system in hard sciences today.) The gullible Roy was taken in by the myths of the Western history of science (and even believed stories about Jesus, and apparently converted to Christianity) without ever bothering to check anything.

These false myths about the history of science also provided the key argument in Macaulay's 1835 minute, to drive home the advantage of Western education. Once Western education was established in India, those falsehoods became self-perpetuating: no one else (including Marxist historians) cross-checked that history of science for the next 190 years. (Indeed, even Marx did not check it, and thought the calculus was of Western origin.[29]) Those myths still abound in our school texts to soften the minds of our future citizens. Hence, the same myths continue to be used today to defend the need for Western education: "science and technology originated in the West, hence we need Western education". Isn't there a way to learn science and technology without all that Western cultural baggage?

To bust these Western superstitions and the myths which support them, it is time to cross check that history of science, and demand compelling evidence for *any* story. Indeed, if we demand evidence, the Western history of science just falls apart: both (a) the racist story of Greek inventiveness, and (b) the myths of the "Copernican revolution", and the "Newtonian revolution".

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28 Raja Rammohun Roy, letter to Lord Amherst, 11 Dec 1823. Available online at http://www.languageinindia.com/april2003/macaulay.html.

29 Karl Marx, *Mathematical Manuscripts*, trans. and ed. Pradip Baksi, Vishvakos Parisad, Calcutta, 1994.

3.2 The myth of the Greek origins of science

Briefly,[30] during the Crusades, an Arabic library at Toledo was mass translated into Latin, starting 1125 CE. For almost eight centuries earlier, the church had burnt all non-Christian books as heretical on the principle that cultural blindness is the essence of morality. The sudden change of policy from burning non-Christian books to learning from them, that too in the midst of a religious war, needed justification. The justification was provided by concocting the fantastic claim that the knowledge in those books was all of (early) "Greek" origin, hence a theologically-correct Christian legacy.

This fantastic story (of the Western origin of all knowledge) was further developed by racist historians, and then used to claim not only Western superiority but to justify the slave trade by the likes of Locke, Hume, Kant, Carlyle etc. Similar processes continue to this day.

However, key purported Greek figures—Euclid and Ptolemy—did not even exist: there is no evidence for their existence, and considerable counter-evidence that they did not exist. Hence, I have offered a prize of MYR 10000 (approx USD 3300, INR 1.8 lakh) for serious evidence about Euclid. No one has claimed the prize so far. Euclid and Ptolemy are just examples, and many other figures, such as Eratosthenes, etc. or their works (e.g. Archimedes) are too shadowy to deserve further consideration.

It is characteristic of the superstitious mind to be uncaring about evidence, hence stories of Euclid stay on in our (NCERT) school texts, put there by its top officials, together with racist pictures of Greeks. My simple demand is this: if there is no evidence for it, remove this false history of science from school texts and remove those dirty racist pictures.

This simple demand for evidence is makes our "experts" (who wrote those texts) uncomfortable. After all *we* decide expertise solely

30 C. K. Raju, *Is Science Western in origin?* Multiversity and Citizens International, Penang, 2009.

through Western appreciation. The lead author of those texts, Jayant Narlikar, is hardly a historian.[31] Most people do not even know what science he has done, or of what value it is to them. (None; not because it is wrong, but because it is *not even wrong*, so one can learn nothing from its failure.[32]) People only know that Narlikar was appreciated in the West by a Cambridge professor. Therefore, for such "experts" Western approval is more important than evidence.

For many of the Western educated too their canine loyalty demands that they wait for Western approval. Hence, while there was a big outcry about the falsehoods in school text put in by the BJP, there was no outcry when those texts were again changed to put church falsehoods back into them. That is, in this matter too, the Western educated react much like the Christian missionaries who designed their education. Their missionary position seems to be , "How dare you issue challenges for evidence. your job is to go beg for Western approval." The religious fervour of the colonised will not allow them to accept anything that is not Western approved. So, those dirty pictures of Greeks continue in our school texts.

3.3 The myth of the scientific revolution

The myth of the scientific revolution is similarly tenuous.

During the Inquisition, too, knowledge was imported wholesale into Europe, but Europeans afraid someone would denounce them as heretics to the Inquisition for possessing non-Christian books. Hence, they claimed it as their "independent rediscovery". That is, non-Christian sources were again suppressed for theological correctness. This led to various fake "scientific revolutions" like the Copernican revolution.

The idea of a revolutionary shift to heliocentricity is bunkum.

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31 C. K. Raju, "On J. V. Narlikar's 'Four Questions That History Might Answer'" *Sandhân* **1** (1) 2001, pp. 164–167. This was an adjudicator report on the paper, published without my prior knowledge, which recommended that Narlikar's paper should be published after changing the title to "Four questions that the library might answer"!

32 For my critique of Hoyle-Narlikar absorber theory, see C. K. Raju, "Classical Time Symmetric Electrodynamics." *J. Phys. A: Math. Gen.* **13** (1980) pp. 3303–17.

Aryabhata maintained the rotation of the earth, and al Biruni correctly pointed out that the earth's motion made no difference to observations (which are geocentric), and it was not clear which theory was better able to explain observations.[33] Even in Newtonian physics, the simplest reference frame is *not* a heliocentric one, but one in which the centre of mass of the two bodies remains fixed. (The heliocentric frame is appropriate only for the 1-body problem of central forces.)

As for his mathematical model, it has been known for the last six decades that Copernicus, a priest, merely translated (from Greek to Latin) the work of Ibn Shatir and the Maragheh school (available in the Vatican library in Greek translation). Specifically, astronomy did not remain static after the mythical Ptolemy, it continued to evolve. Yet we continue to name streets in Delhi after this priest who was turned into a scientific revolutionary through a blatantly false history of science.

Works like those of Kuhn glorifying Copernicus are devoid of all commonsense (According to Kuhn, Ptolemy's text persisted unchanged for 1400 years, but scientific texts are continuously updated, and this is reflected in the clearly accretive features of the Almagest.). Further, they were written *after* the truth about Copernicus leaked out. That is, Kuhn's book on Copernicus, like Toomer's on Ptolemy, thus, acts as an apologia for false history, in an attempt to maintain a false story as a response to the counter-evidence.

Before naming a street after Copernicus, someone should have exercised due diligence and conducted an enquiry to cross check the tall story of this priest who, in reality, was so frightened of the Inquisition (which caught and tortured his close friend Scultetus) that he did not dare publish his work until he was on his death-bed. There are many more such cases like those of Tycho Brahe, Kepler, etc. which I have described elsewhere in detail.

The case of the Newtonian revolution is similar, and is particularly pathetic for India. Thus, Newtonian physics is mostly calculus,[34] and

33 Al Biruni, *Kitab al Hind*, trans. E. Sachau, Keagan Paul, London, 1910, p. 277.

34 Specifically, every problem of Newtonian physics involves the solution of differential equations, and the 5th c. Aryabhata first solved differential equations in India, using what is today called “Euler's method”, to obtain precise values of

calculus developed in India (in relation to the needs of the astronomical models needed for a good calendar). This Indian calculus was transmitted to Europe by Cochin-based Jesuit priests, in the 16th c., since it was obviously helpful to solve the problem of European navigation. European navigators, who used charts, could not then even tell *latitude* at sea. This required (a) precise trigonometric values, (b) a proper size of the earth (which could be determined using those values), and (c) a good calendar (with a good length of the tropical year) to be able to tell the date of the equinox. The most precise trigonometric values (accurate to the 9 decimal places) were then in Indian calculus texts. And an accurate (to 0.1%) size of the earth and a good calendar were available in India since Aryabhata, using presumably the method described by al Biruni. Widely available commentaries, like the *Kriyakramakari*, which contained all this information, were translated and taken back to Europe by the Jesuits.

These Indian texts initially went to top level church functionaries like Clavius and Tycho Brahe (and through him to Kepler). Clavius published a high-precision table of trigonometric values, but did not know enough trigonometry to be able to calculate the size of the earth correctly! Tycho's planetary model is a carbon copy of the model of that of Nilkantha whose commentator Sankara Variyar was had the same patron as the Portuguese. However, Tycho lacked the empirical data to construct such a model. His masonry instruments, copied from al Kashi's observatory at Samarkand, lacked the precision needed. This is further clear from the accurate orbit of Mars, derived from this secret data, later fudged and claimed by Kepler. But, as is the church practice, across 1700 years, church functionaries never acknowledged learning from non-Christians. It was because of such falsehoods that Macaulay, in his infamous minute, could boast about European astronomy, while hiding under the carpet the fact that it was all acquired from others from the Copernican to the Newtonian revolution.

What is even more pathetic is the way the colonial story played out afresh, in recent times, when my research that the calculus was transmitted was itself stolen and repeatedly passed off as the work of some Britishers. This was not an isolated incident, for a former President of the Royal Society too repeatedly claimed credit for my

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circular ("trigonometric") functions like sine and cosine. See C. K. Raju, "Infinite series and π", chp. 3 of *Cultural Foundations of Mathematics*, Pearson Longman, 2007.

work. The colonised minds of most of our journalists were soon made manifest, as I have described elsewhere.[35]

Racist and colonial history built on this false history from Crusades and Inquisition, so it is a source of injustice: One must not forget that these false myths are the source of a variety of injustices. Most notoriously, Kant, Hume etc. justified racism and slavery as ethical, using this false history of science to claim that blacks are not inventive. As Molefi Asante points out,[36] they are used to establish the sense of Western superiority.

These myths, like all propaganda, are a source of power. It is through these myths that Western education was imposed and its continuation is justified. Therefore, they must be corrected, at least in our school texts to begin with.

4. Eliminating superstitions from math and science

However, there is a subtler reason to correct this bad history of science. Bad history leads to bad philosophy. This is not limited to bad ethics as in the cases of of Kant, Hume etc. Through bad philosophy, Christian superstitions have crept into present-day (Western) mathematics and science. Correcting the history of mathematics and science leads to a better philosophy by getting rid of those superstitions *within* mathematics and science. This leads also to a better mathematics and science.

4.1 "Laws" of nature

What are these superstitions in science and math? Let us take an easy first example. The first lesson in science which is taught in our schools is about Newton's laws of motion, and the "universal" law of

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35 C. K. Raju, "Science and the media", National Symposium on Tuning the Media to Science, New Delhi, Oct 2007, chairperson's address. In Proc. At http://ckraju.net/papers/science-and-media.pdf.

36 Molefi Asante, foreword to George James, *Stolen Legacy*, African American Images, 2001.

gravitation. Now why are they called "laws"? Why indeed ought there to be any "laws of nature" or laws of physics? Note the key distinction here between "laws" and regularities or "habits". Regularities certainly exist, are observed, and can be modeled. But fallible scientific models, based on observation, are quite a different cup of tea from faith in eternal and universal laws of nature.

The belief in eternal laws of nature pre-dates Western science, and was first put forward in the Crusading theology of Thomas Aquinas.[37] (I have explained elsewhere[38] the church politics behind this choice.) Further, this belief (in laws of physics) is immediately refuted by mundane experience.[39] Such refutation may be denied, but that makes the belief irrefutable. The belief in "eternal laws of nature" is hence unscientific in either case. In other words, this belief is just a Christian superstition which has crept into science.

This is not a trivial matter, for that belief in "laws of nature" is taught as if it were a scientific belief both by our middle school system, and also at the level of undergraduate courses in philosophy of science.[40] Further, Islam has been repeatedly attacked on the grounds that it is unscientific, just because it does not believe in eternal laws of nature.[41]

4.2 The case of mathematics

As a second example, consider present-day mathematics. The Western educated learn that mathematics is universal; they are still taught the

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37 Thomas Aquinas, *Summa Theologica*, First part of the Second Part, 91,1, http://www.newadvent.org/summa/2091.htm.

38 C. K. Raju, "Benedict's Maledicts", Zmag http://zcommunications.org/benedicts-maledicts-by-c-k-raju. Reprinted in *Indian Journal of Secularism*, **10**(3) (2006) pp. 79-90.

39 C. K. Raju, "Mundane time" in *Time: Towards a Consistent Theory*, Kluwer Academic, Dordrecht, 1994, chp. 8.

40 See, e.g., the minutes of discussion at http://ckraju.net/usm/PSc-minutes.html.

41 C. K. Raju, "Islam and Science", *Indian Journal of Secularism* **15**(2) (2011) pp. 14-29. A more recent version is at http://ckraju.net/hps-aiu/Islam-and-Science-kl-paper.pdf.

racist history that real mathematics (of deduction) began with Euclid, and no one else had any clue to it. It is immediately obvious that the two beliefs together are incompatible and contrary to commonsense. If mathematics is indeed universal, it should have developed the same everywhere. If it developed only in Greece, that could only be a culture-specific form.

Secondly, as already pointed out, there is nil evidence that Euclid even existed. Recall my Euclid prize, and how no one has claimed it, any more that any astrologer has dared to claim Kovoor's prize.

If Euclid did not exist, the book *Elements* must have been written by another person at another time and possibly with a completely different philosophy than that attributed to Euclid. Indeed, all manuscripts of the *Elements* tell us exactly this, for they attribute the book to the 4th c. CE Theon. That suggests the book *Elements* was written from a "Neoplatonic" perspective, then under intense attack by the church. Recall that Plato links mathematics to the soul in both *Meno* and *Republic*.[42] This notion of the soul was rejected by post-Nicene theology, and led to a dispute between the church and "pagans" about the nature of the soul, as a result of which the church banned mathematics and philosophy in general.

After the military failure of the Crusades, the church fell back on reason as the only means of persuading Muslims, hence it accepted back mathematics, but solely as a means of teaching reason, not for improving the soul. Not surprisingly, the purported philosophy attributed to the mythical "Euclid" is remarkably aligned to the post-Crusade Christian rational theology of Aquinas, and his schoolmen. Specifically, the philosophy attributed to Euclid does *not* fit the actual book *Elements*. Thus, for example, the very first proposition of the *Elements* involves an empirical proof, not a deductive (or metaphysical) proof. The fourth proposition too (Side-Angle-Side theorem) too involves an empirical proof. [43]

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42 C. K. Raju, *Euclid and Jesus: How and why the church changed mathematics and Christianity across two religious wars*, Multiversity and Citizens International, Penang, 2012.

43 This means that the *Elements* did geometry just the way everyone else did it, but took a very long-winded route to "prove" the "Pythagorean theorem", which is

Amusingly, it took Western philosophers and historians *8 centuries* to notice this elementary fact about the *Elements* (namely, that it uses empirical proofs in an essential way)! All this while they were bragging about their racial superiority on the grounds that only Greeks understood the need for metaphysical proofs: one naturally wonders at their level of intelligence. When they did notice it, at the turn of the 20th c., they did not abandon as completely unfounded their earlier belief about mathematics as concerned with metaphysical proof. Instead, they came to a rather remarkable conclusion. Bertrand Russell claimed that even Euclid did not understand the method of deductive proof and had hence slipped up in the proof of his fourth proposition! (That is, they now claimed that neither other "races" nor even Euclid understood that mathematics is about metaphysical proof!)

Hence, Russell and Hilbert maintained, the *Elements* must be rewritten in keeping with the idea that mathematics is all about metaphysical proof. Their respective books on the foundations of geometry naturally extended to books on the foundations of mathematics: that philosophy of formalism makes mathematics 100% metaphysics. (And it changes the SAS theorem to a postulate, the way "Euclidean" geometry is taught in our current school texts.)

But why should mathematics be about metaphysical proof? It was always connected to applications everywhere in the world (except for Plato who connected it to the soul). Most people today study mathematics for its practical applications, and that requires calculation. In this situation of practical applications, empirical proofs in mathematics are no problem at all. It is only the church which glories in metaphysics, demands metaphysical proofs, and parades that as its sign of superiority through false history.

And how can this (or any other) metaphysics be universal? That flies in the face of commonsense. Quite specifically, as I have repeatedly pointed out for over a decade, all Indian philosophy, like science, accepts the opposite belief in empirical (or inductive) proof as superior to metaphysical (or deductive) proof. Indians did not think mathematics

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proved empirically in a single step in Indian texts. This is in line with the character of the *Elements* as a religious text intended to put the reader in an introspective state. See, C. K. Raju, *Euclid and Jesus*, cited above.

required any special type of proof, and freely used empirical proofs.[44] Hence, Indian *ganita* is secular. (This is the reason they were declared "inferior" by foolish racist historians, like Rouse-Ball.)

Also, Western philosophers trumpeting the universality of reason have overlooked the elementary fact that reason and metaphysical (deductive) proofs vary with logic. Bu logic is *not* universal, neither culturally nor even empirically. The absence of universal logic was manifest in India from the time of Buddhist *catuskoti* (in the Brahmajala sutta of the Digha Nikaya), and Jain *syadavada*. It takes the pompous racist pride of an ignorant Kant, to assert parochially that logic has not changed since "Aristotle", hence has reached perfection! Quantum logic is not 2-valued, nor even truth-functional.

The belief that mathematics is metaphysics, and that metaphysics is Western makes mathematics religiously biased, unlike *ganita*, which is more universal.

To summarise, the present-day philosophy of mathematics wrongly supposes that (a) mathematics concerns metaphysical proof (not calculation, since proof, not calculation, were the requirement of post-Crusade Christian theology), it wrongly supposes (like post-Crusade theology) that (b) this metaphysics is universal.

The conclusion is that (present-day, formal) mathematics is not universal; in fact, present-day mathematics is not even secular or religiously neutral but has a religious bias. These religious biases are propagated by present-day mathematics.

The question is what is to be done about it. An alternative already exists in the new philosophy of zeroism which I have proposed. This realistic philosophy treats mathematics as an adjunct physical theory, for it regards mathematics as useful for practical calculation. This was the way mathematics actually developed historically.

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44 C. K. Raju, "Computers, Mathematics Education, and the Alternative Epistemology of the Calculus in the YuktiBhâsâ", *Philosophy East and West*, **51**:3 (2001) 325–362.

Recall that Russell praised formalistic metaphysics on the grounds that it makes mathematics difficult by making the simplest things enormously complicated. (He opined that this shows us the need for metaphysical proofs.) Why is 2+2=4? The reason few people today can answer is that they are unaware of the of Peano's axioms and the related metaphysics (e.g. of set theory) needed to prove this. (However, the very fact that most people can get by without that metaphysics shows how completely useless it is!)

In contrast, zeroism also makes math easy by eliminating the Christian theology in it. This ease of learning has been demonstrated through teaching experiments conducted in 4 universities across 3 countries. Typical calculus text is 1400 pages (large size, 2 column, fine print). I taught calculus in 5 days to groups in CUTS, Sarnath, 4 groups in USM, Penang, Ambedkar University Delhi (social science students), and CISSC, Tehran. The test of learning was this: they should be able to solve problems drawn at random from those fat books. These experiments have been reported in conferences, and published in scholarly journals[45] and newspapers.[46]

But can mathematics teaching be changed? There is, once again, the problem associated with the church strategy of maintaining superstitions. Most people are mathematically illiterate (recall, again, that they don't even know *why* 2+2=4). Therefore, they are compelled to trust others. Which others? Obviously either Westerners or those approved by them. I emphasize that ethnicity is no bar to being Western: indigenous math experts, like new converts, can be all the more fanatical. The conflict of interests is very clear.

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45 Teaching mathematics with a different philosophy. Part 1: Formal mathematics as biased metaphysics. *Science and Culture 77* (7-8) (2011) pp. 274–279. http://www.scienceandculture-isna.org/July-aug-2011/03%20C%20K%20Raju.pdf. Part 2: Calculus without limits *Science and Culture 77* (7-8) (2011) pp. 280–85. http://www.scienceandculture-isna.org/July-aug-2011/04%20C%20K%20Raju2.pdf.

46 Apart from the reports cited above, see C. K. Raju, "□□□□ □ □ □ ?", *Dainik Bhaskar*, 13 April 2012, edit page. Text link: http://www.bhaskar.com/article/ABH-what-mathematics-of-the-party-3104218.html. Archived clipping: http://ckraju.net/press/2012/Bhaskar-article-13-April-print-version.gif. "□□□□ □ □□ □ □ ?", *Dainik Bhaskar*, 9 July 2012, http://ckraju.net/gif/Dainik-Bhaskar-9-June-2012.gif etc. English versions of similar newspaper articles are archived at http://ckraju.net/blog.

Thus, academic salaries are determined by papers published in "reputed" journals. This requires approval by Western editors and the referees secretly appointed by them. This involves blind belief in a church ritual (secretive refereeing) which was invented for the specific purpose of maintaining orthodoxy (i.e., superstitions) and suppressing the truth. Therefore, a "reputed" expert would not dare to run foul of the West.

So long as people implicitly trust the authority of the West, even God can't help them, and would anyway not like to, for it is such a foolish thought that those who derive their power from lies will help to determine the truth.

Freedom is possible only when laypersons revolt against this rule of Western-trained mathematicians, and apply their own mind to the matter. It is to encourage such a revolt, and help laypersons to understand things, that I have written the book *Euclid and Jesus* for the layperson.

4.3 Calculus and the metaphysics of infinity in science

Let us next see a deeper example of how superstitions creep into science proper, and how they can be eliminated.

As already stated, it is false history that the calculus was invented by Newton and Leibniz. In fact, the West got both arithmetic algorithms, AND calculus from India. Further, as already pointed out, the West didn't properly understand algorithms, and had problems with zero for another 500 years.

This epistemic difficulty with imported knowledge is a key sign of transmission. Western mathematicians didn't properly understand calculus either. Descartes stated that the infinite series for pi was beyond the capacity of the human mind. These problems with the Indian infinite series persisted for another 500 years (i.e., till today, so it is particularly pathetic that we continue to imitate the Western lack of understanding of the calculus).[47]

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The subtle question here is this: how did Newton's lack of understanding of the calculus affect his physics?

Briefly, as I have explained in detail elsewhere, Newton took a fundamentally religious view of the matter: he thought he was a prophet (since born on the 25th of December according to a wrong calendar). Hence, he thought the laws of God (re: Aquinas) had been revealed to him. He thought of mathematics too in religious terms: he believed those eternal laws of nature were written in the the perfect language of mathematics—perfect since it concerned eternal truths (re: Plato's *Meno*: on the principle of sympathetic magic, the eternal soul is best aroused by the eternal truths of mathematics, and what is eternal must be perfect).

All the same Newton needed the calculus, and particularly the notion of instantaneous velocity and acceleration (or derivative with respect to time) for the formulation of his second law of motion. While he accepted Descartes criticism that the calculus was imperfect since it involved infinite series and infinitesimals etc. he thought his theory of fluxions was the answer. That is, he thought the time derivative makes sense by making time flow. (Of course, the slightest thought shows that though things may flow *in* time, the idea of time itself flowing is a perfectly meaningless idea; nevertheless, it is amusing how people in awe of Newton keep quoting him on that.)

Worse, while his predecessor Barrow tried hard to make time physical, Newton took a step backwards,[48] imagining that perfection in calculus could only be achieved by making time metaphysical (re Plato: empirical things are imperfect). Newton's error with calculus led to the error in his physics eventually corrected by Poincare's special relativity. Of course, the theory of relativity must be correctly understood as requiring functional differential equations (as I have pointed out), and by reformulating gravitation (as in my retarded gravitation theory[49]).

C. K. Raju, "Math wars and the epistemic divide in mathematics", in *Cultural Foundations of Mathematics*, cited above, chp. 8.

48 C. K. Raju, "Time: what is it that it can be measured?" *Science&Education* **15**(6) (2006) pp. 537–551.

49 C. K. Raju, "Retarded gravitation theory", in: Waldyr Rodrigues Jr, Richard

That is, Newton not only did not invent the calculus he misunderstood it, and hence made a mistake about "time". *Hence*, because of this *conceptual* error, Newton's "laws of motion" are wrong (they use ordinary differential equations) and the "law of gravitation" is also wrong.[50] (Quantitatively, the differences are large at the level of the galaxy.)

Summary

Western education enables capture of the mind, since it stuffs the mind with superstitions, teaches denial of common sense and reliance on (Western) authority. It does this because it was designed by the church to produce missionaries, and was long controlled by it. Hence, also, *Western knowledge is filled with religious biases even in math and science and needs to be reformed together with the false history of science used to establish colonial education* and still taught in our schools.

Because of the problem of scientific illiteracy and gullibility, spread by Western education, people are forced to rely on "experts". However, "expert raj" is just another rule by proxy, for these "experts" are entirely under the Western thumb. They are required to regularly perform the ritual of not only writing papers, but must get them published in "reputable" journals, i.e., those controlled by Western academics. Therefore, it is essential for them to remain in the good books of the West. These "experts" don't care about evidence or science or anything other than Western approval. Hence, they will never oppose anything Western any more than puppet dictators will oppose the US. Waiting for Western approval for something which seeks to reform the West is like waiting for Godot.

Kerner, Gentil O. Pires, and Carlos Pinheiro (ed.), *Sixth International School on Field Theory and Gravitation*, American Institute of Physics, New York, 2012, pp. 260-276. http://ckraju.net/papers/retarded_gravitation_theory-rio.pdf.

50 The two "laws", laws of motion and law of gravitation, must be combined to get physics, since neither law in itself is refutable. See, C. K. Raju, "Newton's time", *Physics Education*, **8** (1991) pp. 15–25.

Accordingly, to escape from Western superstitions one must abandon this “expert rule” among the colonised. Let these “experts” show their knowledge in the open and instead of flaunting Western certificates as adequate to take all decisions behind closed doors. Contrary to the church processes of deciding everything in secret these experts must be forced to explain their positions publicly. Exposure to light will help to kill the church's dark techniques of mind control.